

Building Your Own Connector



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Warning!
Proceed with caution!



Check First

Go to Confluent Hub

Make a Google search



Make it Generic

Don't overly customize it



Building Your Own Connector



Source Connector

More complex and less straightforward



How to ingest data?



What does my data look like?



When to ingest data?



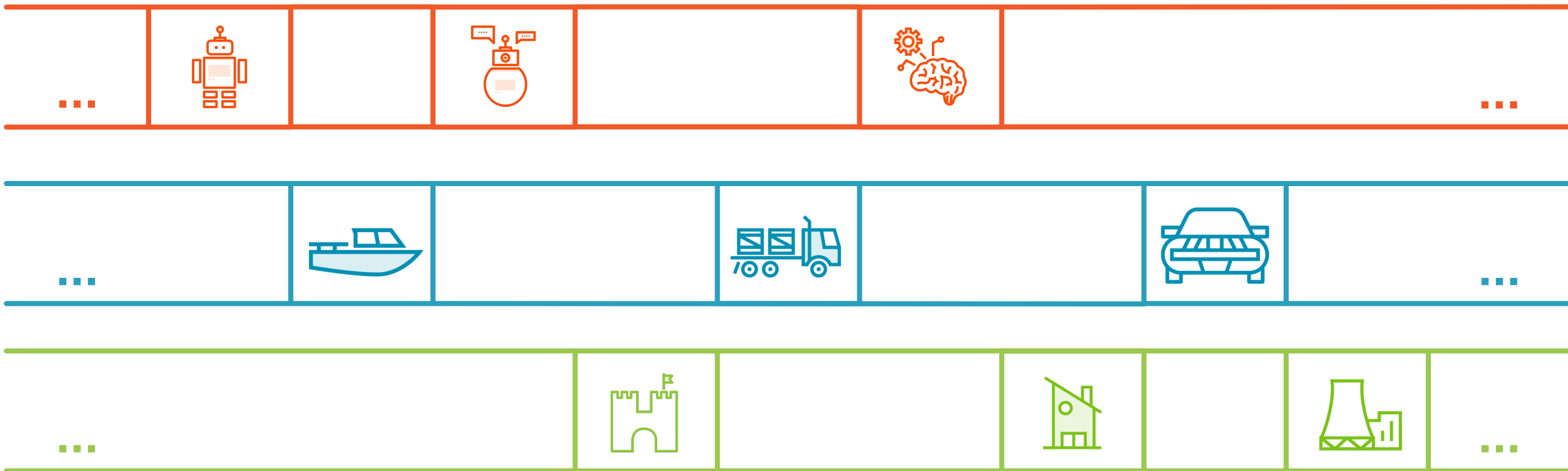
Partitioned Streams



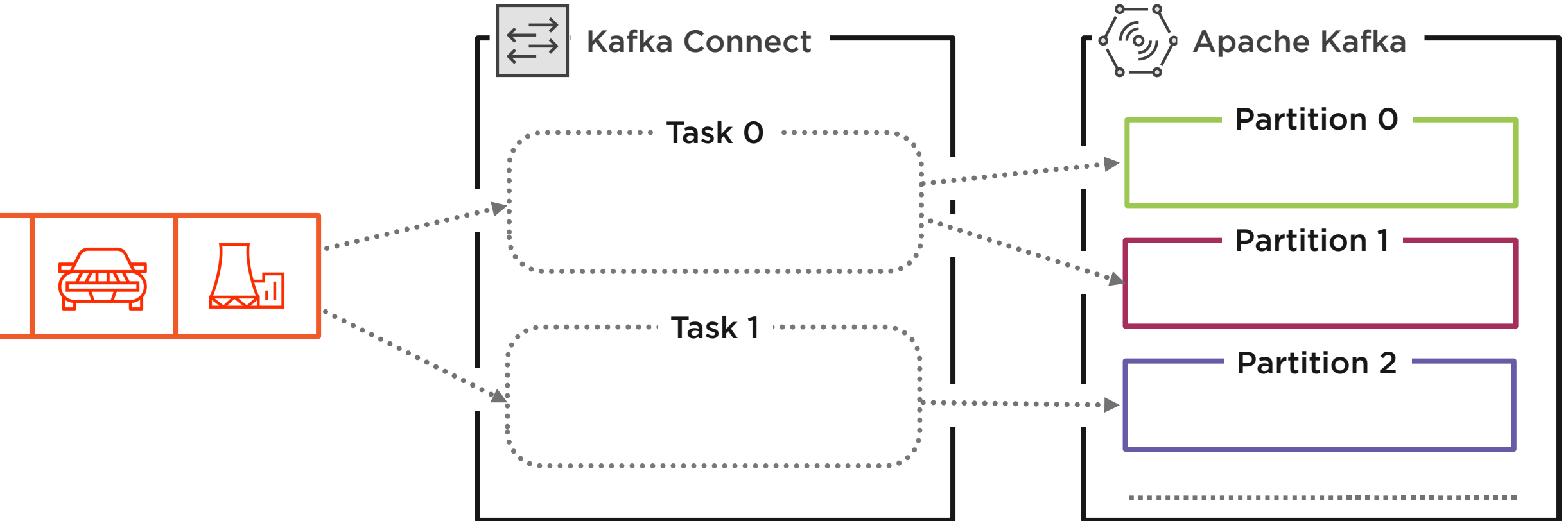
Data Stream



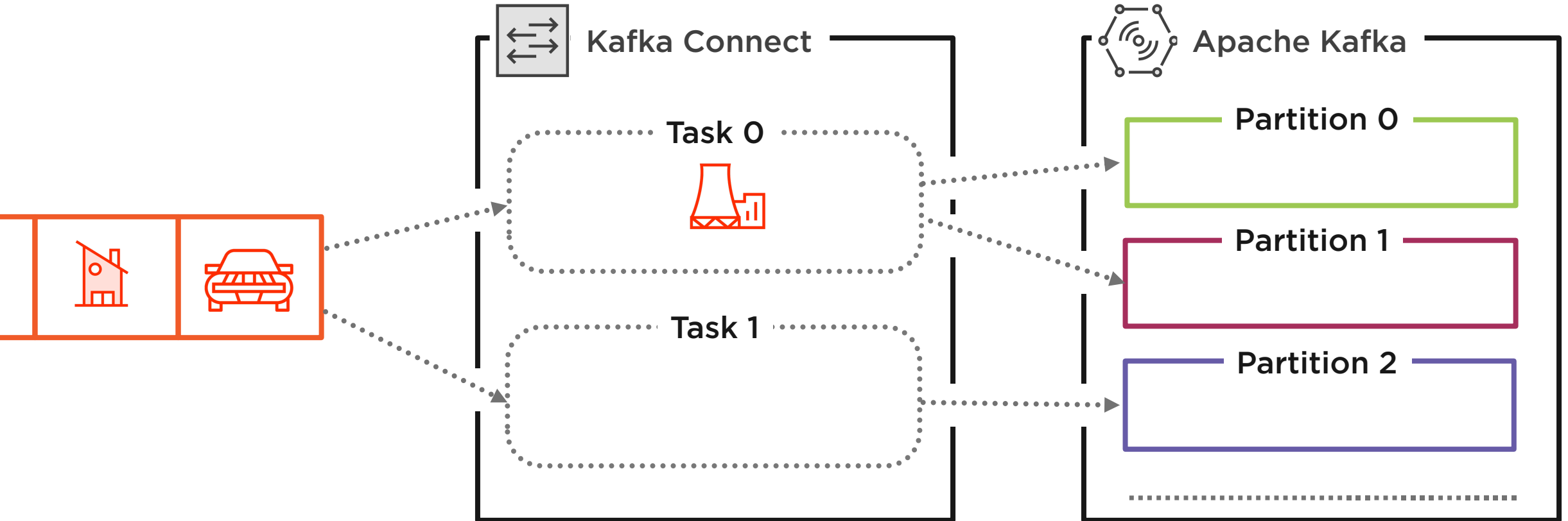
Partitioned Stream



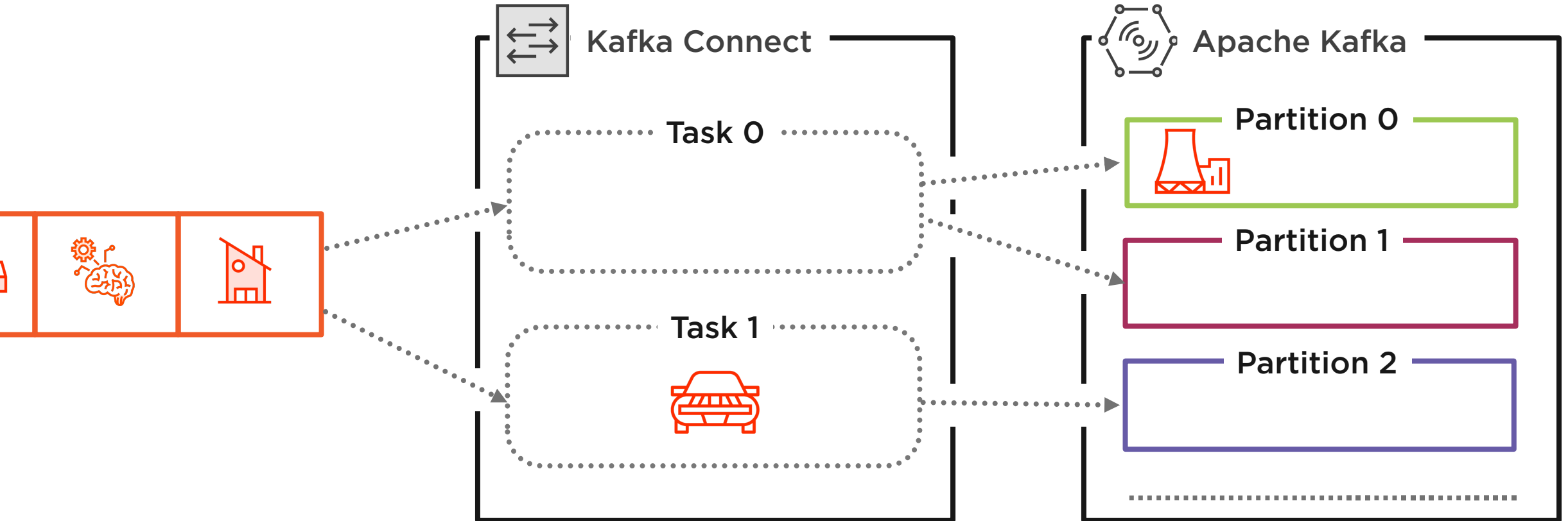
Apache Kafka & Data Streams



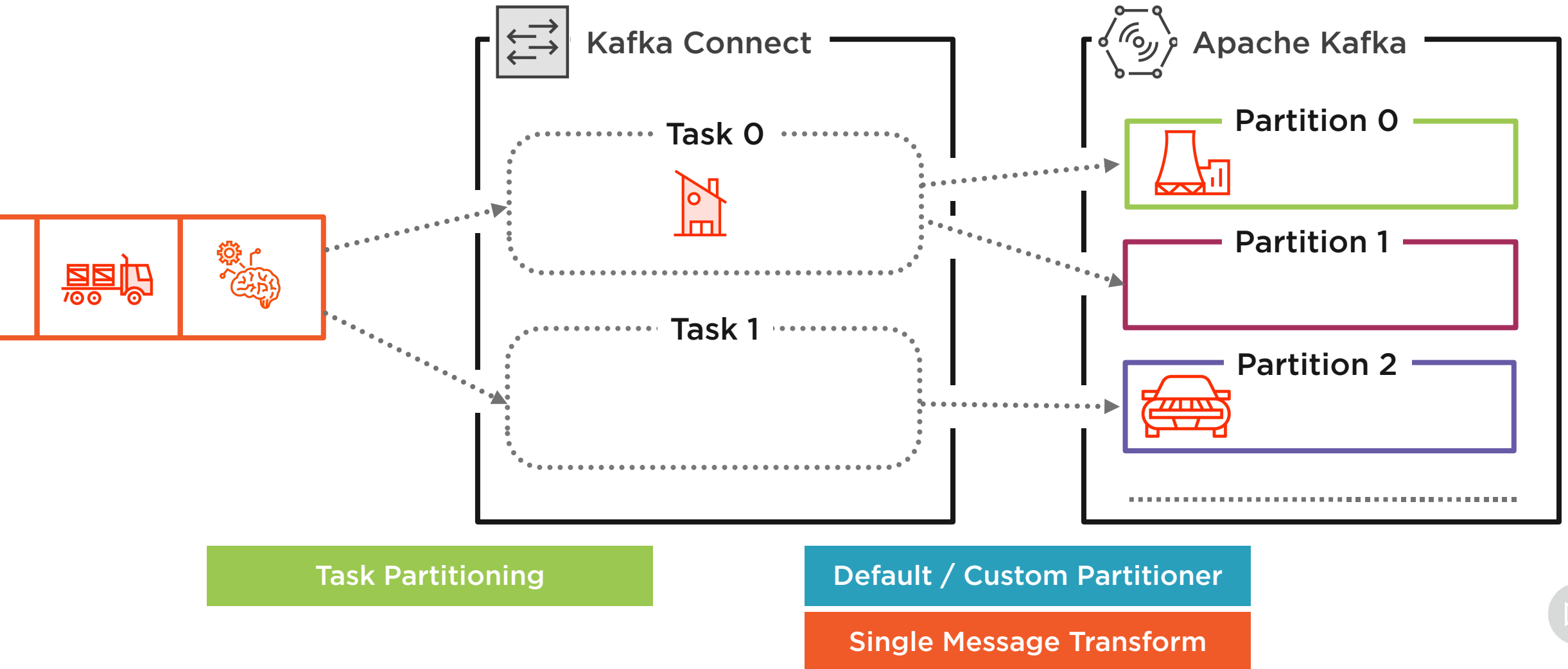
Apache Kafka & Data Streams



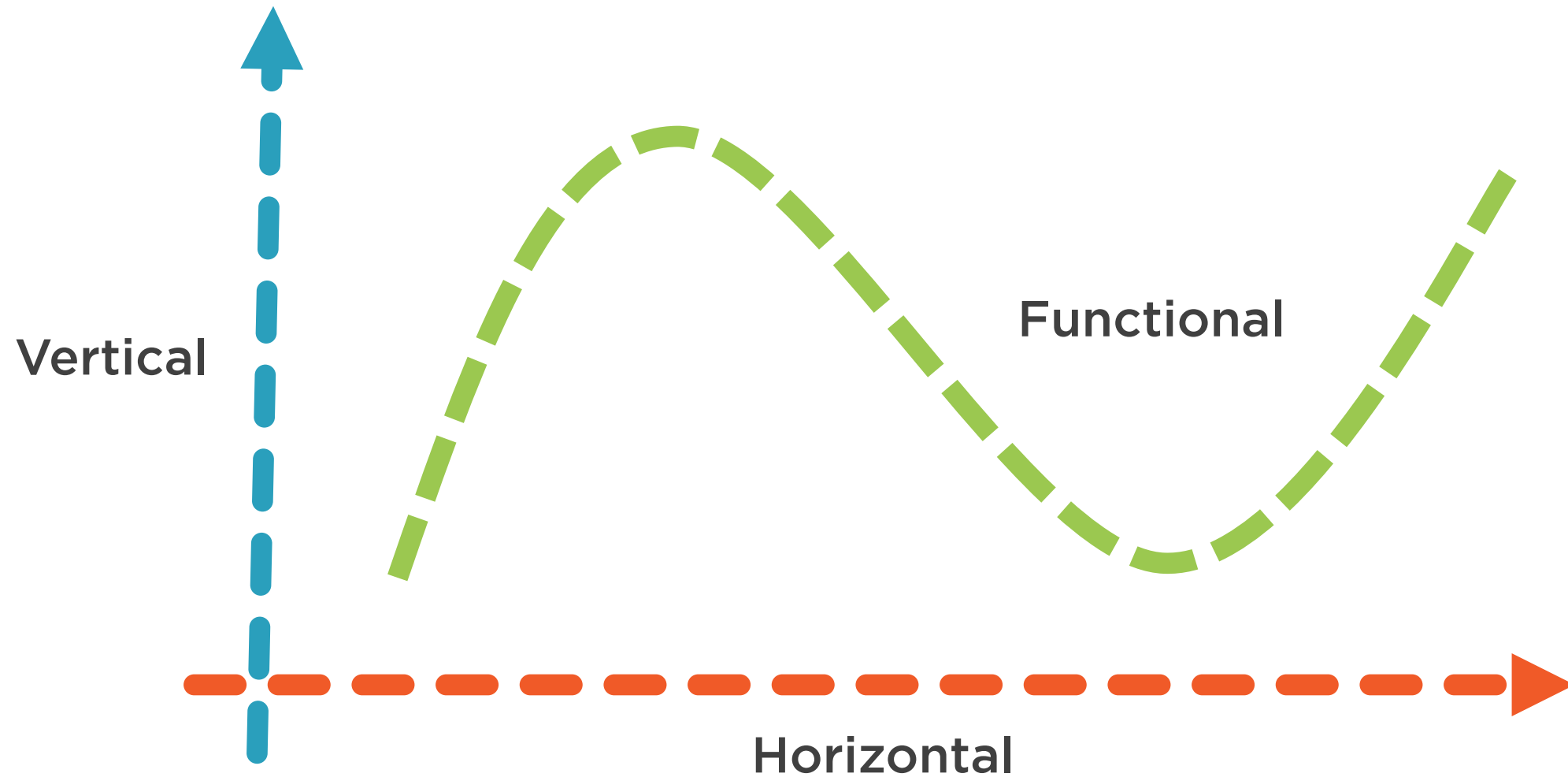
Apache Kafka & Data Streams



Apache Kafka & Data Streams



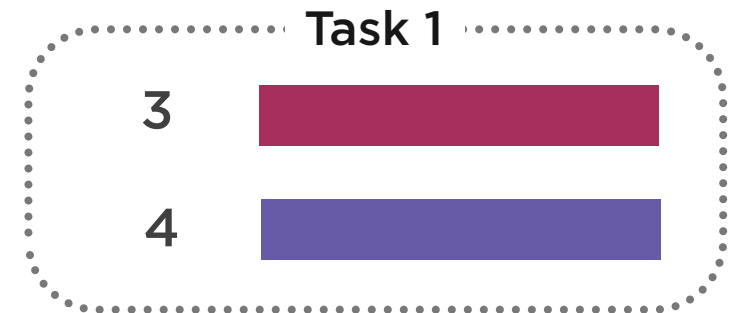
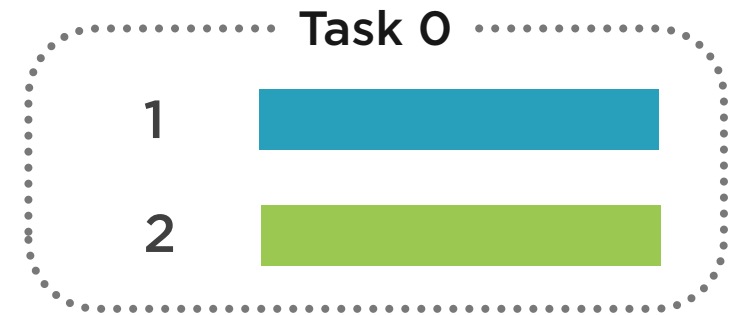
Partitioning Strategies



Horizontal Partitioning Strategy

articles

| id | author | title | diagram | body | footnote |
|----|--------|-------|---------|------|----------|
| 1 | | | | | |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |



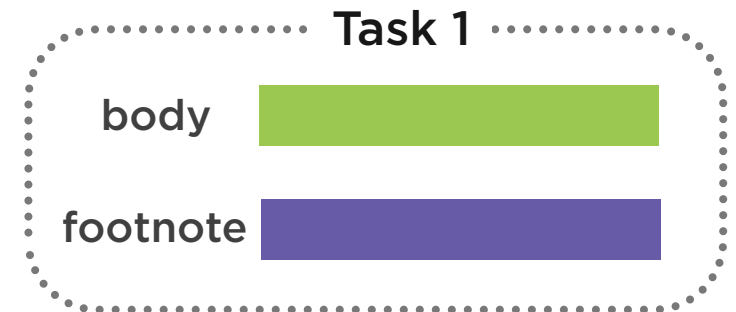
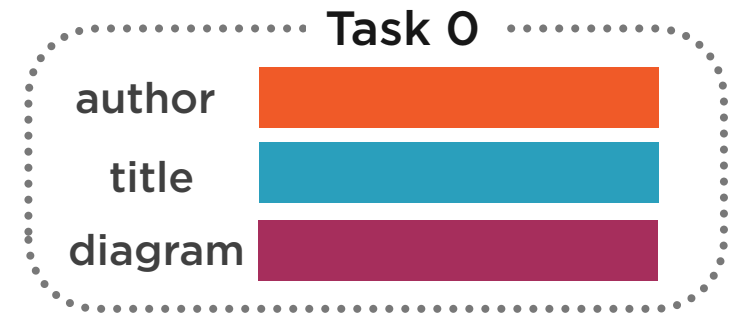
$\#task = \text{hash}(\text{key}) \% \text{nbOfTasks}$



Vertical Partitioning Strategy

articles

| id | author | title | diagram | body | footnote |
|----|--------|-------|---------|------|----------|
| 1 | | | | | |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |



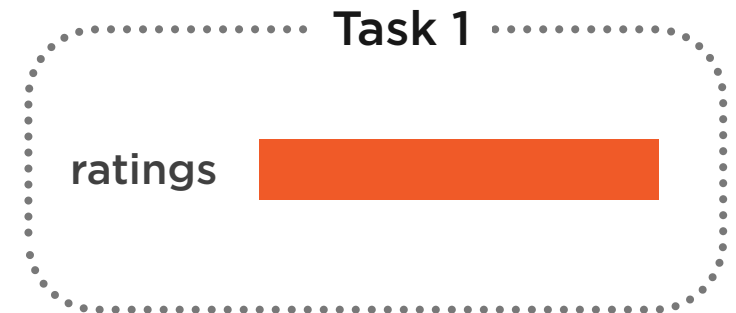
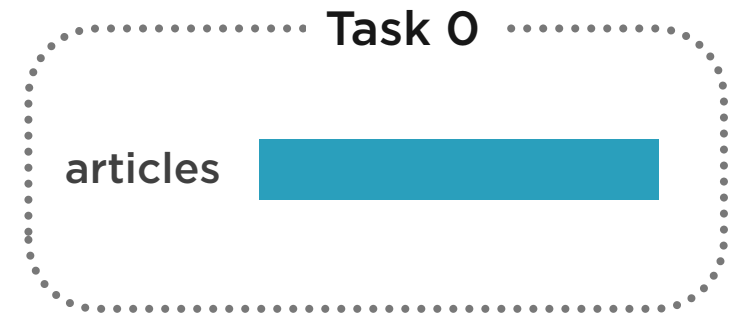
Functional Partitioning Strategy

articles

| id | author | title | diagram | body | footnote |
|----|--------|-------|---------|------|----------|
| 1 | | | | | |
| 2 | | | | | |

ratings

| id | article_id | user_id | rating |
|----|------------|---------|--------|
| 1 | | | |
| 2 | | | |

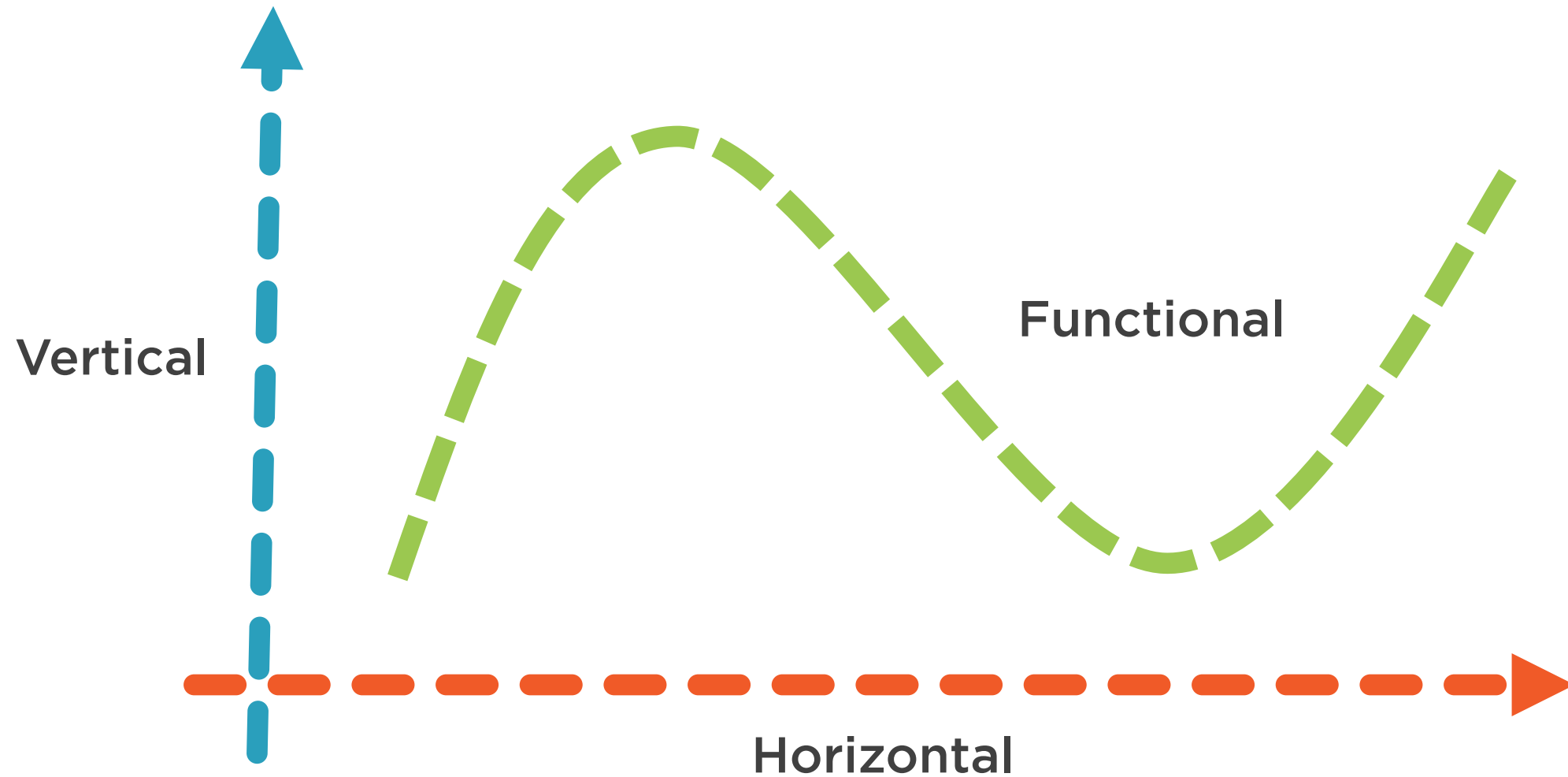


Which one should you pick?

... it depends!



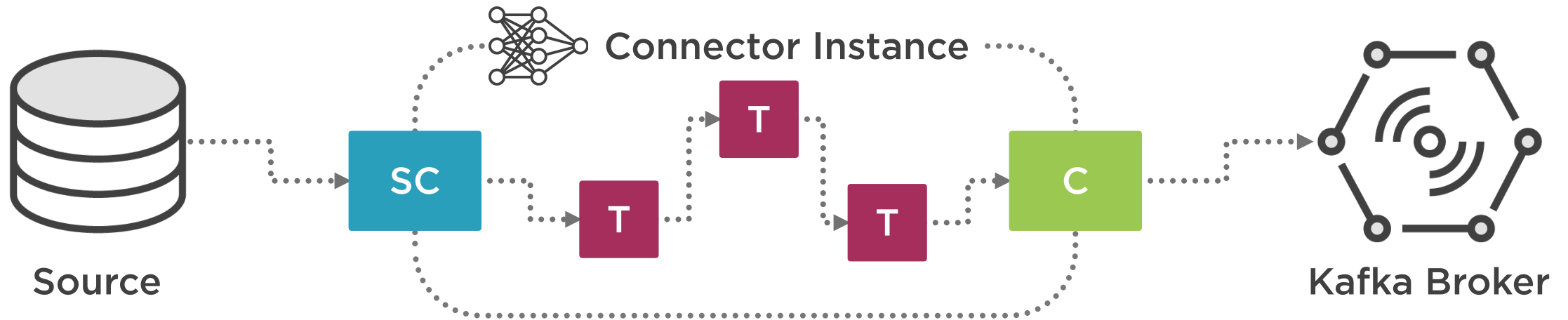
Partitioning Strategies



Config Validation & Schemas



Kafka Connect Configuration



| Configuration |
|---------------------------|
| Nb. of Tasks |
| Connection Configuration |
| Single Message Transforms |
| Converters |



- Source Connector



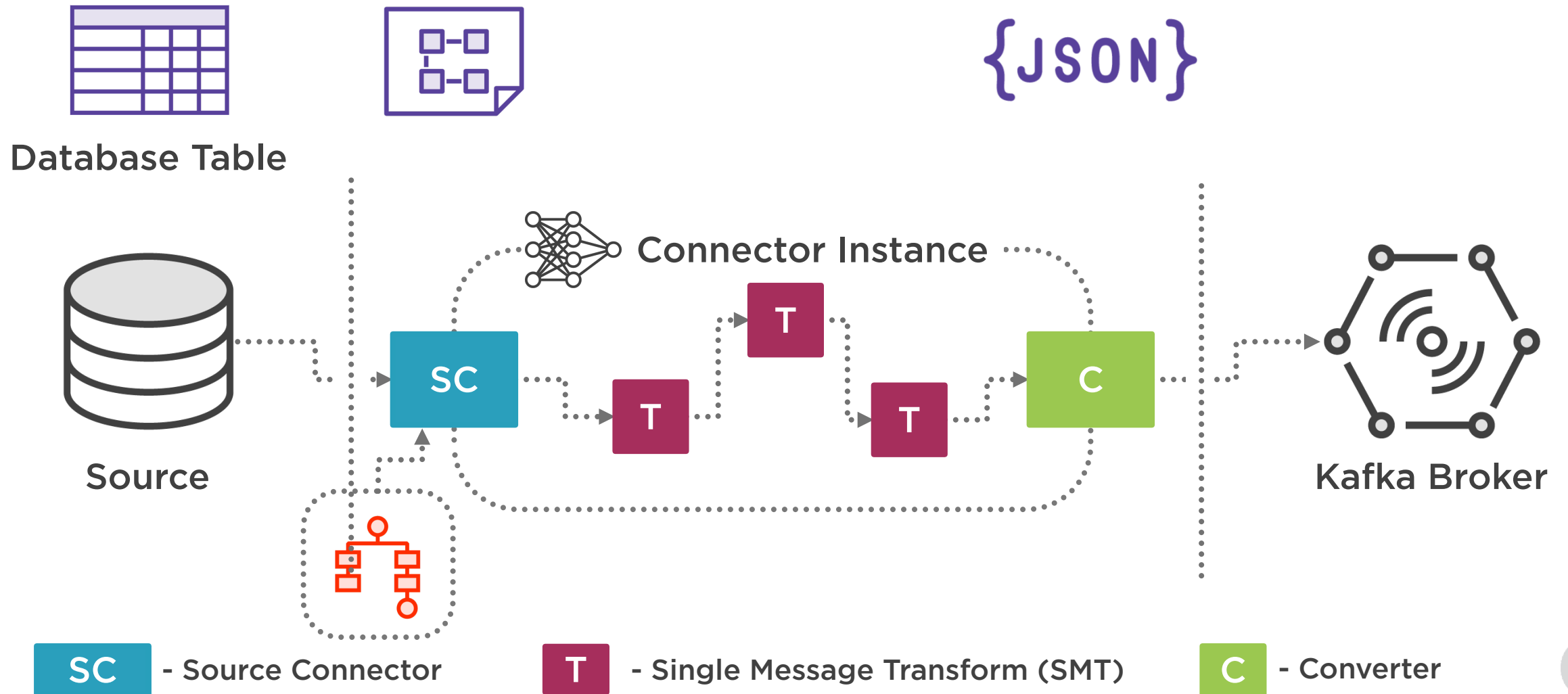
- Single Message Transform (SMT)



- Converter



Schemas



Primitive Schema Types

Kafka Connect Schema

Java

| | |
|---------|---------|
| INT8 | Byte |
| INT16 | Short |
| INT32 | Integer |
| INT64 | Long |
| FLOAT32 | Float |
| FLOAT64 | Double |
| BOOLEAN | Boolean |
| STRING | String |
| BYTES | Byte |



Complex Schema Types

Kafka Connect Schema

ARRAY

MAP

Struct

Optional *

Java

Array

Map

Object

Object || Null



Demo



Building Weather Connector

Open Weather Map

Defining Config

Creating Schemas

Prerequisites:

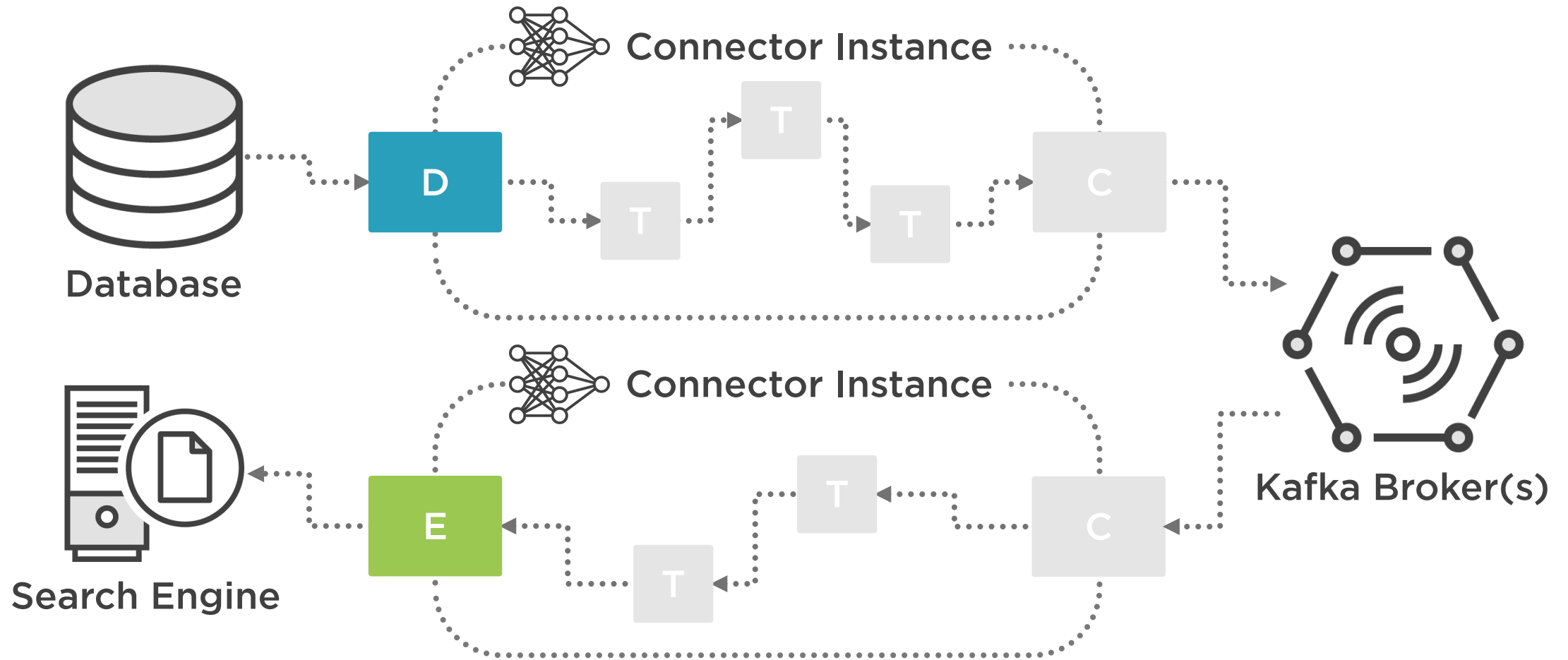
- Java



Connectors & Tasks



Connectors



D

- Database Connector

E

- Search Engine Connector

T

- Single Message Transform (SMT)

C

- Converter



Connectors

MySourceConnector.java

```
public class MySourceConnector extends SourceConnector {

    @Override
    public void start(Map<String, String> props) {}

    @Override
    public Class<? extends Task> taskClass() {}

    @Override
    public List<Map<String, String>> taskConfigs(int maxTasks) {}

    @Override
    public void stop() {}

    @Override
    public ConfigDef config() { }

    @Override
    public String version() {}

}
```

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MySinkConnector.java

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I'm version 1.0 !



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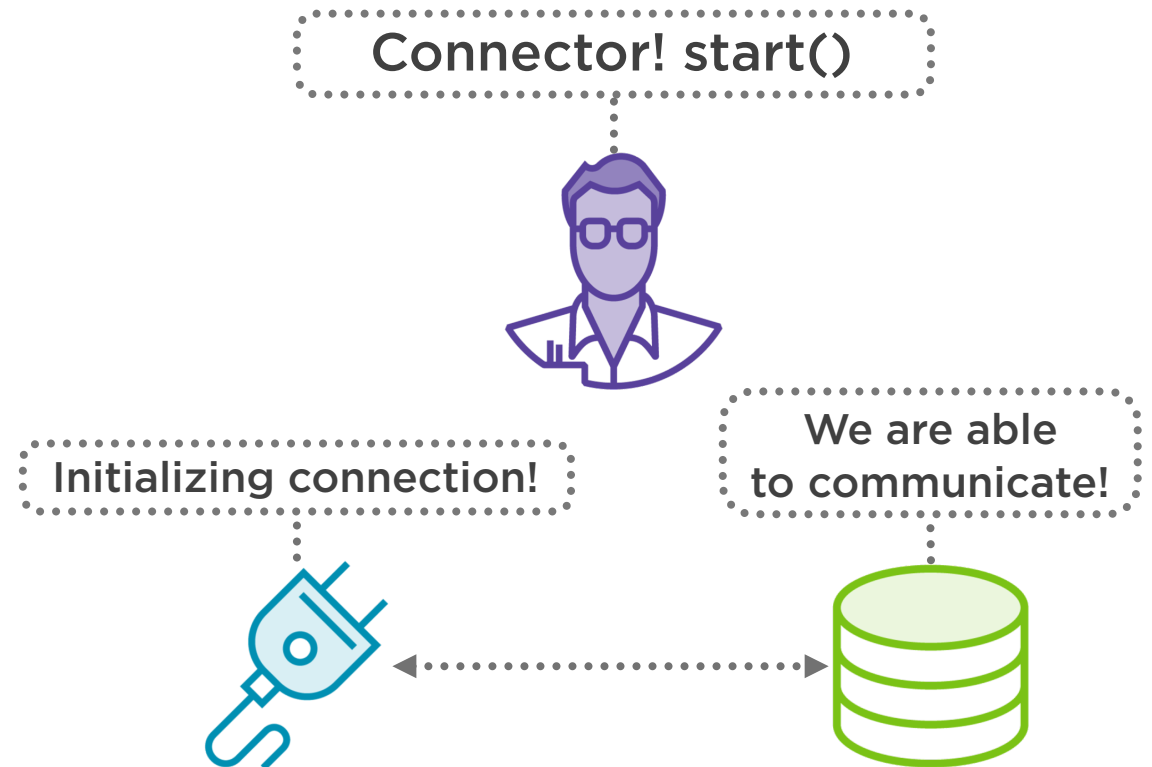
```
{
  "name": "articles-connector",
  "config": {
    "connector.class":
"io.debezium.connector.mysql.MySqlConnector",
    "tasks.max": "1",
    "database.server.id": "223344",
    "database.server.name": "globomantics",

    ...
  }
}
```

Connectors

MySourceConnector.java

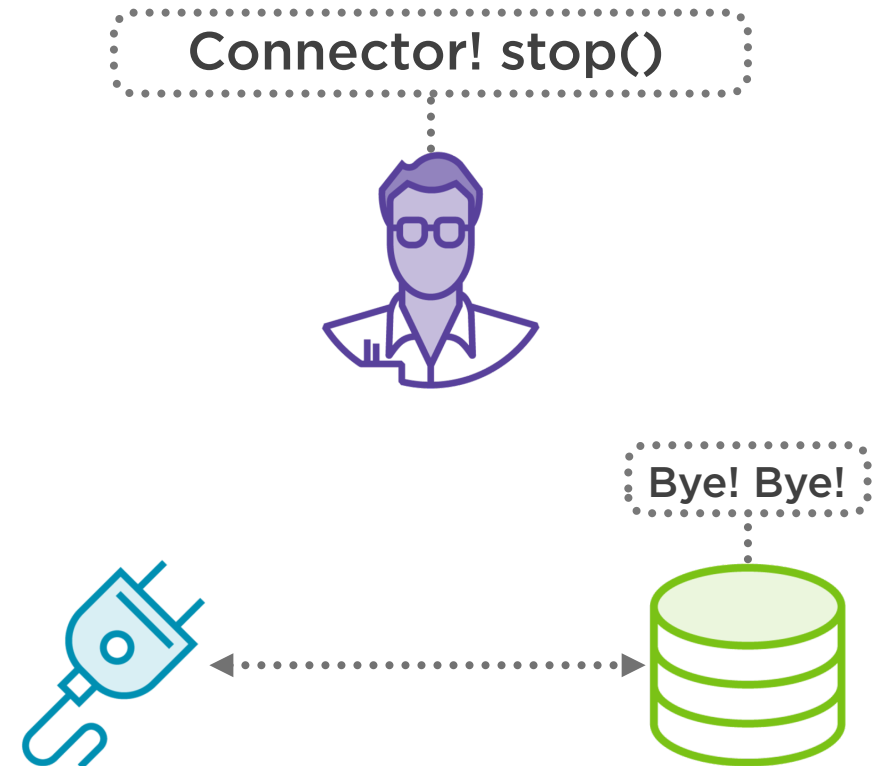
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Connectors

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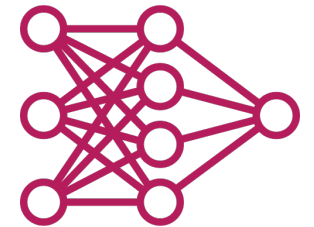


Connectors

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}
```

I'm going to use
this task class!

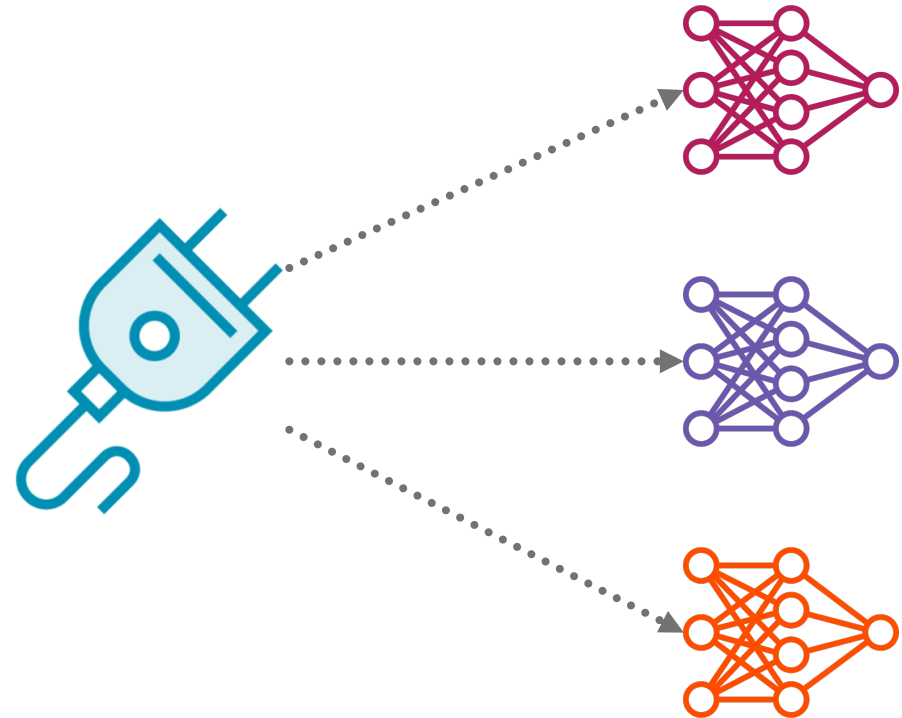


MySourceTask.java

Connectors

MySourceConnector.java

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    @Override  
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    @Override  
    public ConfigDef config() { }  
  
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    public String version() {}  
}
```



Source Tasks

MySourceTask.java

```
public class MySourceTask extends SourceTask {  
  
    @Override  
    public void start(Map<String, String> props) { }  
  
    @Override  
    public List<SourceRecord> poll() throws  
InterruptedException { }  
  
    @Override  
    public void stop() { }  
  
    @Override  
    public String version() { }  
}
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Source Tasks

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Setup config



Initialize connection



Check previous contexts

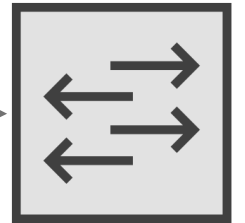
Source Tasks

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```



Source

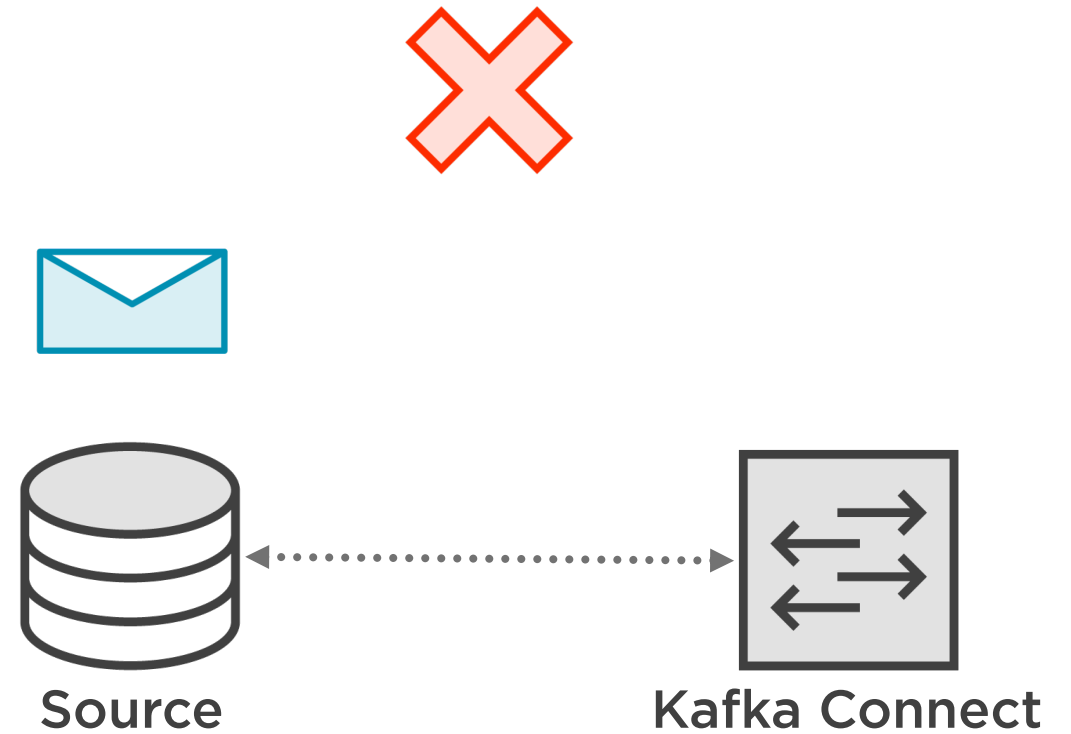


Kafka Connect

Source Tasks

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}
```



Sink Tasks

MySinkTask.java

```
public class MySinkTask extends SinkTask {  
  
    @Override  
    public void start(Map<String, String> props) { }  
  
    @Override  
    public void put(Collection<SinkRecord> records){ }  
  
    @Override  
    public void stop() { }  
  
    @Override  
    public String version() { }  
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Sink Tasks

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    @Override  
    public void stop() { }  
  
    @Override  
    public String version() { }  
}
```

Demo



Create Connector & Task

Deploy our new connector



Summary



Partitioned Streams

Steps for building connectors and tasks

Created our own Weather Connector

